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air of industrial enterprises in the form of gases, vapors, and dust which despite their daily effect on the workers in the course of the working day and an unlimited duration of the working period will fail to induce any pathological changes or diseases detectable by modern means of investigation.*

The established maximum allowable concentrations pertain to working areas understood to be areas where workers constantly or periodically remain for the purpose of supervision or operation of production processes. If the productions are carried out at different points of the working premise, then the entire premise is regarded as a working area.

Inasmuch as the respiratory tract (inspiration) is the main pathway through which a poisonous substance gains entry into the organism, the prevention of environmental air pollution is the main means of preventing the development of occupational intoxications.

* LETAVET, A. A. Data on the proceedings of the International Symposium concerning maximum allowable concentrations of toxic substances in industry, Prague 1959.

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Organizations projecting a technological process, production equipment, and ventilating installations (in calculating air exchange), and also the organs which supervise industrial sanitation and hygienic control over the state of the environmental air at working premises must be guided by the legally established maximum allowable concentration values.

The air content of toxic substances at the level of maximum allowable concentrations can in no way be regarded as the optimum for the environmental air. All means at the disposition of modern technology are aiming to attain concentrations considerably smaller than those established, and in many cases bring these concentrations to zero value.

The maximum allowable concentrations of toxic substances are subjected to periodic reexamination. A comparison of the established values with concentration values found in the air of a working premise on the one hand, and the state of workers' health on the other hand provides a basis for changing the maximum allowable concentrations, and in a number of cases serves as an indication of the imperfection of the technological process from a hygienic point of view.

The practice of establishing norms in labor hygiene just as the practice of establishing norms in technology is closely linked with the methods used in measuring regulation values. Without the existence of such methods the
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establishment of maximum allowable concentrations loses its practical significance. These methods must possess sensitivity permitting the determination of values equal to those of PDK, and when possible conducted with the use of a small volume of air obtained in a brief fragment of time. The latter is of principal significance, for a prolonged period of sample gathering produces a mean value which fails to provide a representation of the briefly-lasting high concentrations exceeding the maximum established norms.

The control of the environmental air when linked with problems of establishing PDK norms, arbitrary analysis in particular, is a highly responsible type of analysis. Nevertheless, there are no handbooks which provide a summation of experience gained in analytical work in this direction and oriented toward the unification of the used methods.

The authors when compiling this practical handbook attempted to bridge this gap in literature concerning air analysis.

Methods described in Soviet and foreign literature and revised by the authors making them applicable in conditions for the establishment of norm values were used as materials for this book. For a considerable number of substances new methods have been developed.

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Methods of identification of a large number of toxic substances for which PDK have been established in accordance with the list published in the sanitary norms for the projection of industrial enterprises. Sn 245-63 [Construction norms 245-63] with subsequent supplements are described.

A number of new methods mainly based on the application of catalysis, hemoabsorption, and new color reactions along with the methods for the determination of PDK most of which are utilized in the practice of sanitary-chemical analysis are described in the book.

The presence in the book of new and improved methods of detection of toxic substances in the air, and the presentation of the existing methods in accordance with the established maximum allowable concentration values permits the hope that the book will be useful to chemists working in the area of analysis of industrial environmental air.

The second issue of this handbook is supplemented by a considerable number of methods (more than 50) of determination of new chemical substances being introduced into industry.

A number of methods described in the first issue have been reexamined and replaced by more rational and improved methods making it possible to complete

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an analysis faster, with a smaller volume of air, and with greater accuracy (hydrogen cyanide, vinyl chloride, hydrogen chloride, and others).

Particular attention is paid to group analytical methods with prospects of their application to the even larger number of toxic substances being used in industry (aliphatic amines, carbonyl compounds, halogen derivatives of hydrocarbons, and others).

Introduction: An air analysis of industrial enterprises has for its object the detection of gases, vapors, and aerosols which exert a harmful effect on the human organism.

The sources polluting the industrial environmental air are technological processes linked with the utilization or formation of toxic volatile substances.

With equipment inadequately hermetically sealed, particularly hazardous processes poorly encapsulated, and the absence of or use of inadequately effective sanitary technical devices, mainly ventilation, the concentrations of harmful admixtures in the air may attain values constituting a danger to the workers' health.

Soviet laws with regard to labor protection limit the degree to which the industrial environment can be polluted by establishing norms of maximum allowable concentrations of toxic gases, vapors, and dust in the air.

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The practice of establishing hygienic norms of maximum allowable concentrations of toxic substances requires a systematic control of the industrial air environment, and consequently the availability of sensitive and when possible selective methods of analysis.

The sanitary-chemical analysis of the air is one of the most complex branches of analytical chemistry. Concentrations of toxic substances when determined are expressed in tenths and frequently in 100ths of a milligram per cubic meter of air. In addition, the analyst frequently has to deal not only with individual substance, but also with multicomponent mixtures and highly complex analytical systems.

Through efforts of Soviet chemists during the past four decades a special branch of analytical chemistry known as Industrial-Sanitary Chemistry has been created and is continuing to develop. Its main object of investigation is the air of industrial enterprises.

In the period that has passed general positions with relations to the tasks confronting industrial hygiene in connection with the chemicoanalytical control of the air environment and original methods of detection of large quantities of toxic gases, vapors, and aerosols in the air were developed.

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Many of the photometric methods currently used in the different spheres of analytical chemistry -- hydro-chemical, biochemical, and other types of analysis -- had their beginning and subsequent development in the sphere of Industrial-Sanitary Chemistry.

The list of toxic substances for which PDK norms in the air have been established includes a considerable number of substances belonging to different groups of organic compounds: hydrocarbons, complex ethers, alcohols, and organo-chlorine compounds. Therefore, sensitive group methods along with methods of detection of individual substances are presented in the book.

The availability of functional and elementary methods for the micro-analysis of organic compounds broadens analytical potentials and opens ways for their application to new substances being introduced into industry. In this case all the analyst has to do is to determine the precise conditions applicable to the determination of the given concrete substance.

The group method of analysis acquires particular importance when used in a toxicological experiment conducted for the purpose of determining concentrations of studied toxic substances in a polluted chamber. Inasmuch as individual substances, as a rule, are being investigated, the search for a selective method becomes unnecessary.

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Most of the methods described in the book are based on the application of highly sensitive color reactions and belong to the colorimetric methods. The availability of special handbooks on the theory and practice of photometric analysis makes it unnecessary to dwell on the general regulations, methods, and procedures used in photometric analysis.

For the purpose of the photometry of colored solutions photometers and photocalorimeters of different makes, and standard series of solutions are widely used in the sanitary-chemical analysis of the air environment.

A detailed description of the method used for the preparation of a standard scale necessary for the visual photometry of color and the compilation of a calibration curve used in the application of photocalorimetry is provided in all of the colorimetric methods presented in the book.

The method of sample selection plays an important role in the analysis of the air in industrial premises. Depending on the aggregate condition of the substance, some other methods of its interception from the air are used. New methods of sample selection, modern filtering materials, solid absorbents used in quasi-liquid and in fluidized beds find their reflection in the book.

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Because of the great responsibility of the conclusions arrived at on the basis of the results of PDK determination, the authors have given particular attention to the prescribed portion of the method and creation of conditions ensuring the necessary sensitivity of the determination. This has been achieved by the selection of the appropriate reactions, concentration of the studied substance in a small volume of the solution, adjustment of conditions of sample selection in relation to the volume of and rapidity with which the air is being drawn. The sensitivity of the method is expressed in milligrams per cubic meter of air for the purpose of its convenient comparison with the established maximum allowable concentration, while the volume -- in liters (decimeter³). One liter = 1.000028 decimeter³ = 1.000028·10⁻³ meter³. Methods with a sensitivity lower than PDK are not presented in the book.

Along with sensitivity the extent of method selectivity is indicated, and if information is available the substances which interfere with determination are mentioned.

There are no specific, in the strict sense of the word, methods. Substances interfering with the determination of the sought compound may always be present in an industrial atmosphere. Their removal is usually accomplished

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in the course of the sample selection process by the use of selective absorption media.

It is necessary to emphasize the fact that the conditions of an industrial atmosphere as those of an analytical system are manifold and require a conscientious and skilled approach to analysis. Certain corrections which should be indicated by the knowledge of the technological process and the experience of the analyst may always be required.

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BUREGUD, YE. A., BYKHOVSKAYA, M. S. (Deceased), and GERNET, YE. V.
"Rapid Methods for Determination of Harmful Substances in Air"
Moscow, "Khimiya" Publishing Company, 1970

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USSR

PEPERGUD, YE. A., et al., "Rapid Methods for Determination of Harmful Substances in Air".

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EEBECUD, YE., et al., "Rapid Methods for Determination of Harmful Substances in Air"

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PEREGRIN, YE., A., et al., "Rapid Methods for Determination of Harmful Substances in Air"

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EREGUD, YE, A., et al., "Rapid Methods for Determination of Harmful Substances in Air"

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24/24

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USSR

UDC 543.27:628.512

PEREGRUD, YE. A., BYKHOVSKAYA, M. S. (deceased), and GERNET, YE. V.

"Rapid Methods for Determination of Harmful Substances in Air"

Moscow, "Khimiya" Publishing Company, 1970

Abstract: The apparatus, methods of sampling and rapid methods for the determination of toxic substances in air are described in this book. Domestic and foreign-made gas analyzers, both stationary and portable ones are described as well as methods for the preparation of mixtures with known gas composition for calibration of the instruments and testing the methodology. The book is intended for workers in scientific research institutes, sanitation-sanatorium and gas-safety stations, plant laboratories and other organizations involved in atmospheric studies. There are 142 figures, 12 tables and 377 literature references in the book.

1/1

- 20 -

USSR

UDC 536.46:533.6

BLOSHENKO, V. N., MERZHANOV, A. G., PEREGUDOV, M. I., KHAYKIN, B. I.

"Toward a Theory of the Gas-Phase Combustion of a Drop"

V sb. Goreniye i vzryv (Combustion and Explosion -- Collection of Works),
Moscow, "Nauka", 1972, pp 227-233 (from RZh-Mekhanika, No 3, Mar 73, Abstract
No 3B938).

Translation: The gas-phase combustion of a drop of liquid fuel close to critical conditions is considered on the basis of the inertia of the gas medium, and the validity of substituting the equations of multicomponent diffusion for the equations of independent diffusion ordinarily used is also analyzed. A computer solution to the problem is given. It is shown that it is impossible to neglect the inertia of the gas medium in problems concerning the combustion of a droplet and also that the drop is completely evaporated under critical conditions at the moment of combustion, and that the combustion picture at small distances from the limit considerably depend on the magnitude of the total pressure in the gas phase (or in the evaporation intensity which is defined as the evaporation intensity in the absence of chemical reaction).

1/1

USSR

BLOSHENKO, V. N., et al, *Goreniye i vzryv*, Moscow, "Nauka", 1972, pp 227-233

It is shown that the multicomponent property of the gas medium has a considerable effect on the combustion process. 14 ref. Authors' abstract.

2/2

USSR

UDC: 669.245'25:539.4.015/019

PEREGRUDOV, M. N., Moscow

"Influence of Grain Size on Mechanical Properties of Nickel-Cobalt Alloys"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 6, 1973, pp 150-154.

Abstract: A study of deformation hardening of Ni-Co alloys with various grain sizes shows that the parameters σ_0 and K from the equation of Petch increase with decreasing packing defect energy. With increasing deformation, σ_0 and K increase according to an identical exponential rule, the exponent decreasing with decreasing packing defect energy. The influence of grain size on dislocation density within deformed grains is confirmed. The mechanism of the influence of grain size on intragrain structure has usually been related to the changing quantity of grain-boundary sources in the stage of microdeformation and at the yield point. Another possible mechanism of influence is the influence of grain size on the nature of the change of the mean free path length of dislocations, causing an additional increase in dislocation density and deformation hardening.

1/1

1/2 023

UNCLASSIFIED

PROCESSING DATE--27NOV70

TITLE--ROLLING TEXTURE AND STACKING FAULT ENERGY OF NICKEL COPPER ALLOYS
-U-

AUTHOR--(02)-VISHNYAKOV, YA.D., PEREGUDOV, M.N.

P

COUNTRY OF INFO--USSR

SOURCE--FIZIKA METALLOV I METALLOVEDENIE, FEB. 1970, 29, (2), 422-424

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--COPPER NICKEL ALLOY, RECRYSTALLIZATION, X RAY DIFFRACTION
ANALYSIS, CRYSTAL DISLOCATION, METAL ROLLING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/0347

STEP NO--UR70126707029/0027042270424

CIRC-ACCESSION NO--AP0129579

2/2 023

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0129579

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ROLLING AND RECRYSTALLIZATION TEXTURES OF NI,CU ALLOYS CONTG. CU 40-47 AT. PERCENT WERE STUDIED BY X RAY DIFFRACTION AND COMPARED WITH EXISTING DATA, AND THE RESULTS WERE INTERPRETED IN TERMS OF THE CORRESPONDING STACKING FAULT ENERGIES. THE STACKING FAULT ENERGIES OF PURE NI AND CU ARE 300 AND 70 ERG-CM PRIME2, RESP., WHILE THAT OF NI 40PERCENT CU IS ONLY 25 ERG-CM PRIME2, THE ENERGY COMPOSITION CURVE PASSING THROUGH A MIN. POSSIBLE REASONS FOR THIS EFFECT ARE CONSIDERED.

USSR

UDC 629.7.036.536.46

BLOSHENKO, V. N., MERZHANOV, A. G., PEREGUDOV, N. I., and KHAYKIN, B. I.

"Formation of an Unsteady Diffusive Combustion Front During the Ignition of a Drop of Liquid Fuel"

Odessa, 11-ya Vses. Konf. po Vopr. Ispareniya, Goreniya i Gaz. Dinamiki Dispersn. Sistem, 1972--Sbornik(11th All-Union Conference on Problems of the Evaporation, Combustion, and Gas Dynamics of Dispersed Systems, 1972--Collection of Articles), 1972, pp 42-43 (from Referativnyy Zhurnal--Aviatsionnyye i Raketnyye Dvigateli, No 1, 1973, Abstract No 1.34.11. Resume)

Translation: A theoretical investigation is conducted of the process of the formation of an unsteady diffusive combustion front during the ignition of a quiescent drop of evaporating liquid fuel in an inorganic gaseous atmosphere containing an oxidant. The investigation was conducted for a thermal ignition mechanism and transition from ignition to unsteady diffusive combustion. During the analysis, account was taken of the unsteadiness of the process of heat and mass exchange in the gas medium. It was established that on the basis of the nature of the process taking place, the transition from ignition to unsteady diffusive combustion may be represented as an aggregate of the successive stages: formation of an unsteady diffusive combustion front -- unsteady diffusive combustion.

1/1

P
2
USSR

UEC: 621.375.121

LEKISHVILI, K. M., AZIDZIGURI, A. A., KHAZARADZE, O. L., GEDEVANISHVILI, G. S.,
ANDREYEVSKIY, YU. S., PEREGRUDOV, V. P., Tbilisi Department, Electrotechnical
Scientific Research Institute

"A Transistorized Wide-Band Nanosecond Pulse Amplifier"

Moscow, Pribory i Tekhnika Eksperimenta, No 2, Mar/Apr 70, pp 129-131

Abstract: A wide-band nanosecond pulse amplifier is described with a gain of 40 DB, a frequency band of 10-120 MHz, nonuniformity of no more than 1.5 DB in frequency response, sensitivity of 0.5 nV, signal-to-noise ratio of 25, input impedance of 75 ohms, and output impedance of 50 ohms. The proposed amplifier may be used in time-interval selector circuits, time-amplitude converters, nuclear radiation detectors (where it is used as a preamplifier), time and amplitude devices, etc.

1/1

USSR

UDC 542.91:547.1'118

LAZAREVA, M. V., PEREKALIN, V. V., and MASTRYUKOVA, T. A., Institute of Metal Organic Compounds, Academy of Sciences, USSR, and Leningrad State Pedagogical Institute Imeni A. I. Gertsen

"Synthesis of 2-Aminoethylphosphonic Acid Homologs"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6, Jun 73,
pp 1382-1385

Abstract: Homologs of 2-aminoethylphosphonic acid were synthesized by addition of dialkyl phosphites to nitroolefines, followed by the reduction of 2-nitroethylphosphonic acid esters formed to aminoesters. Hydrolysis of the latter gave free acids.

1/1

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USSR

UDC 543.422.4:547.1'118

MATROSOV, YE. I., BARANOV, G. M., PEREKALIN, V. V., KABACHNIK, M. I., and
MASTRYUKOVA, T. A., Institute of Heteroorganic Compounds, Academy of Sciences
USSR, and Leningrad State Pedagogical Institute imeni A. I. Gertsen

"IR Spectra and Hydrogen Bonds in Some Organophosphorus Derivatives of Nitro
Alcohols"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 11, Nov 71,
pp 2572-2575

Abstract: The article describes results of a spectral study of organophosphorus derivatives of nitro alcohols -- O,O-dialkyl- α -hydroxy- β -nitroalkyl phosphonates of the type: $(RO)_2P(O)-C(OH)CH_3 - CHR'NO_2$; R=C₂H₅ (I), i-C₃H₇ (II); R'=H (a), CH₃ (b), C₆H₅ (c). The results indicate the formation in the solid state of intermolecular H bonds formed by OH and P=O groups. There is equilibrium of free and associated molecules in solutions of the phosphonates.

1/1

USSR

UDC 542.91:661.718.1

MASTRYUKOVA, T. A., LAZAREVA, M. V., and PEPEKALIN, V. V., Institute of Organoelemental Compounds, Academy of Sciences USSR, and Leningrad State Pedagogical Institute imeni A. I. Gertsen

"New Synthesis of γ -Aminopropylphosphonic Acid"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6, Jun 71, pp 1353-1354

Abstract: The authors report the synthesis of γ -aminopropylphosphonic acid by hydrolysis of O,O-diethyl- γ -aminopropyl phosphonate, obtained by condensation of O,O-diethylvinyl phosphonate with nitromethane in the presence of sodium ethylate with subsequent reduction.

1/1

32

1/2 014

UNCLASSIFIED

PROCESSING DATE--30OCT70
-U-

TITLE--STERIC FACTORS IN THE REACTION OF TETRANITROMETHANE WITH ALKENES

AUTHOR-(03)-BUYEVICH, V.A., ALTUKHOV, K.V., PEREKALIN, V.V.

COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHM. 1970, 6(4), 658-61

DATE PUBLISHED----70

P

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--NITROMETHANE, ALKENE, BENZENE DERIVATIVE, CHEMICAL SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/2016

STEP NO--UR/0366/70/006/004/0658/0661

CIRC ACCESSION NO--AP0125604

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UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125604
ABSTRACT/EXTRACT—(U) GP-0- ABSTRACT. THE COURSE OF THE TITLE REACTION
DEPENDS ON THE SUBSTITUTION OF THE ALKENE DOUBLE BONDS. RCH:CPH SUB2
(I) (R EQUALS PH) REACTED WITH C(NO SUB2) SUB4 TO GIVE PHC(NO SUB2):CPH
SUB2. I (R EQUALS H) GAVE HC(NO SUB2):CPH SUB2 AND H SUB2 C(NO
SUB2)C(OH)PH SUB2. RCME:CHPH (R EQUALS H OR ME) GAVE RCME(NO SUB2)BZ
AND HON:C(NO SUB2) SUB2 YIELDS N SUB2 O SUB3. PHCH:CMEPH (R IS ME OR
PH) GAVE PHCH(NO SUB2)CPH:CH SUB2. RCH:CR PRIME1 R PRIME2 GAVE 2,(CR
PRIME1 R PRIME2 CH(NO SUB2)R), 4R,5,R PRIME1, R PRIME2
DISUBSTITUTE,3,3,DINITROISOXAZOLIDINES (R, R PRIME1, R PRIME2 GIVEN): H,
ME, PH; ISG-PR, ME, ME; ME, H, ET. FACILITY: LENINGRAD.
PADAGOG. INST. IM. GERTSENA, LENINGRAD, USSR.

UNCLASSIFIED

1/2 C14

UNCLASSIFIED

PROCESSING DATE--11 DEC 70

TITLE--NITROVINYLLATION OF CH ACIDS -U-

AUTHOR--(03)--VOLYNSKIY, V.E., PEREKALIN, V.V., SUPOVAY, A.S.

CCOUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHM. 1970, 6(5), 938-41

DATE PUBLISHED-----70

P

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--NITRATION, BENZENE DERIVATIVE, CHLORINATED ORGANIC COMPOUND,
AROMATIC NITRO COMPOUND, AROMATIC KETONE, ETHER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1326

STEP NO--UR/0366/20/006/005/0938/0941

CIRC ACCESSION NO--APC135000

UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0135000
ABSTRACT/EXTRACT—(U) GP-0- ABSTRACT. THE REACTION OF PHCX:CHNO SUB2 (I)
(X IS CL OR IODINE) WITH NACHRCO SUB2 ME (R IS CG SUB2 ME, OR CN), NA
DIMEDONE DERIV., OR NACH(COR PRIME1) COR PRIME2 (R PRIME1 AND R PRIME2
GIVEN: ME, CET; ME, ME; PH, ME) GAVE MIXT. OF O SUB2 ACH SUB2 CPH:CRG
SUB2 ME, O SUB2 NCH: CPHCH(COR PRIME1) COR PRIME2, OR
5,5,DIMETHYL,2,(1,PHENYL,2,NITROETHYL),1,3,CYCLOHEXANEDIONE. THE
REACTION OF I WITH MEOH GAVE PHC,(OME) SUB2 CH SUB2 NO SUB2.
SIMILARLY, PHCI:CPHNO SUB2 REACTED WITH MEOH TO GIVE PHC (OME) SUB2
CPHNO SUB2. FACILITY: LENINGRAD. GOS. PEDAGOG. INST. IM.
GERTSENA, LENINGRAD, USSR.

UNCLASSIFIED

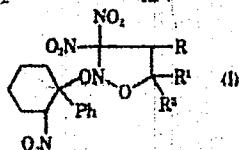
Acc. Nr:

AP004879

Abstracting Service:
CHEMICAL ABST.Ref. Code:
4170 ULR 0366

90354g Directed synthesis of 2-(2-nitroalkoxy)-3,3-dinitroisoxazolidine derivatives. Buevich, V. A.; Altukhov, K. V.; Perekalin, V. V. (Leningrad Gos. Pedagog. Inst. im. Gertseva, Leningrad, USSR). Zh. Org. Khim. 1970, 6(1), 187-8 (Russ).

A mixt. of 1:1:1 1-phenylcyclohex-1-ene, $C(NO_2)_2$, and $RCH=CR^1R^2$ was kept at room temp., evapd., and chromatographed to give trisubstituted 3,3-dinitro-2-(2-nitro-1-phenylcyclohex-1-yloxy)isoxazolidines (I) (R , R^1 , and R^2 given): H, Bu, H; H,



amyl, H; H, Me_2CCH_2 , Me; H, CH_2Br , H; H, CH_2OH , H. In the same way, 3,3-dinitro-2-(2-nitro-1-phenylcyclohex-1-yloxy) perhydrobenzisoxazole was prep'd. The alk. hydrolysis of I ($R = R^1 = H$, $R^2 = Bu$) gave 3-nitro-2-phenylcyclohexene.

CPJR

REEL/FRAME
19800560

USSR

UDC 542.91:547.1'118

MASTRYUKOVA, T. A., LAZAREVA, M. V., and PEREKALIN, V. V., Institute of Heteroorganic Compounds, Academy of Sciences USSR, and Leningrad State Pedagogical Institute imeni A. I. Gertsen

"Synthesis of Nitro- and Aminoalkylphosphonates"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 5, May 72, pp 1164-1168

Abstract: There are two promising methods for the synthesis of organonitrophosphorus compounds, viz. the addition of nitroalkanes to organophosphorus compounds with multiple bonds or the addition of organophosphorus compounds to nitroolefins. The authors used the second method, introducing nitroisobutylene, nitropropylene and α,ω -nitrostyrene into reaction with dialkyl phosphites and thiophosphites to obtain C,O-dialkyl 1-phenyl-2-nitroethylphosphonates. Catalytic reduction of the resultant nitroalkylphosphonates with hydrogen over Raney nickel gave the corresponding aminoalkylphosphonates. Free 1-alkyl-2-aminoalkylphosphonic acids are obtained by hydrolysis of the esters with hydrochloric acid.

1/1

1/2 014

UNCLASSIFIED

PROCESSING DATE--20NOV70

TITLE--DEPENDENCE OF MAGNETOCRYSTAL ANISOTROPY ON FIELD STRENGTH IN
HEXAGONAL BARIUM FERRITE -U-

AUTHOR--(03)-SHCHUROVA, A.D., PEREKALINA, T.M., FONTON, S.S.

CCNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58,
NR 5, PP. 1571-1573

DATE PUBLISHED----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--MAGNETIC ANISOTROPY, SINGLE CRYSTAL, MAGNETIZATION, BARIUM
FERRITE

CCNTRL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/0025

STEP NO--UR/0056/70/058/005/1571/1573

CIRC ACCESSION NO--AP0127675

UNCLASSIFIED

2/2 G14 UNCLASSIFIED PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AP0127675
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STRONG DEPENDENCE OF THE MAGNETIC ANISTROPY CONSTANT ON MAGNETIC FIELD STRENGTH H IS OBSERVED IN BASC SUB1.8 FE SUB10.2 O SUB19 SINGLE CRYSTALS. IN FIELDS H SMALLER THAN H SUBC THE CRYSTALS HAVE AN AXIS OF EASY MAGNETIZATION AND IN FIELDS H GREATER THAN H SUBC THEY POSSESS A PLANE OF EASY MAGNETIZATION. THE RESULTS ARE EXPLAINED ON BASIS OF A MODEL OF TWO MAGNETIC SUBLATTICES WITH WEAK EXCHANGE INTERACTION BETWEEN THEM.
FACILITY: INSTITUT KISTALLGRAFIKI, AKADEMII NAUK SSSR.

UNCLASSIFIED

Acc. Nr: AP0043590

P Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy
Fiziki, 1970, Vol 58, Nr 3, pp 821-824

MAGNETIC ANISOTROPY AND MAGNETIZATION PROCESSES
IN STRONTIUM-ZINC HEXAGONAL FERRITES

Perekalina, T. M.; Shchurova, A. D.;

Sannikov, D. G.; Fonton, S. S.

Qualitative changes in the torque curves with increase of magnetic field strength and the presence of two minima in the magnetic anisotropy energy, i. e. the existence of two easy magnetization directions, are experimentally observed in single crystals of the hexagonal ferrites $\text{Sr}_2\text{Zn}_2\text{Fe}_{12}\text{O}_{22}$ and $\text{Sr}_3\text{Zn}_2\text{Fe}_{24}\text{O}_{41}$. A model of two magnetic sub-lattices with weak exchange interaction between them is employed for explaining the experimental data.

REEL/FRAME
19762062

6/1
18

USSR

UDC 8.74

KASATKIN, V. N., PEREKHOD, I. A., STARIKOVA, N. G.

"Some Problems of the Method of Teaching Programming for Digital Computers"

V sb. Teoriya yazykov i metody postroyeniya sistem programmir. (Language Theory and Methods of Constructing Programming Systems--collection of works), Kiev-Alushta, 1972, pp 121-129 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V407)

Translation: The available experience in teaching a course in "Fundamentals of Cybernetics" in the middle school in which significant attention must be given to the problems of utilizing digital computers and, in particular, programming, is reflected, and this problem is discussed. A two-level procedural scheme is proposed as the basis for the programming course in the middle school. On the first level the students are familiarized with the principles of computer organization of computation with manual programming. For this purpose the Posta computer was selected. It had been manufactured in two versions of the technological execution -- relay and on the basis of the MIR series of elements. The description of this computer is presented in the appendix. In the second stage of the training, provision is made for familiarization with the principles of automation of programming and the study of algorithmic languages. The idea of
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USSR

KASATKIN, V. N., et al., Teoriya yazykov i metody postroyeniya sistem programmir.,
Kiev-Alushta, 1972, pp 121-129

developing a Provisional Algorithmic Language has been advanced. This language must 1) be sufficiently general to reveal the essence of the description of the most varied programs, 2) be free of extraordinary details, 3) as an inseparable part of the system of its operators, include those which permit programs to be written not only for numerical but also for analytical data processing. It is proposed that the subset of languages of the MIR series digital computers, in particular, the ANALITIK language, be taken as the basis for such a language. The first version of a complete set of operators of the Provisional Algorithmic Language is presented in the appendix.

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USSR

UDC: 8.74

PEREKHOD, I. A.

"The Language of the Author of a Teaching System and Possible Means of its Realization"

Teoriya Yazykov i Metody Postroyeniya Sistem Programmir. [The Theory of Languages and Methods of Construction of Programming Systems--Collection of Works], Kiev-Alushta, 1972, pp 111-120 (Translated from Referativnyy Zhurnal Kibernetika, No 11, 1972, Abstract No 11V538, by V. Nikheyev)

Translation: An informal description of a typical author language (AL) is presented, and one means of its realization is suggested. The AL allows: 1) interaction of a digital computer with the student in the dialogue mode; 2) analysis and evaluation of students answers; 3) evaluation of the effectiveness of teaching using fixed criteria and improvement of teaching programs. The dialogue interaction of the student and computer is understood as a sequence of actions, by means of which the machine gives the student certain information, receives from the student responses (requests) and, on the basis of analysis of the responses, presents further information. Analysis of the student's responses consists either of successive comparison of responses with the expected responses (standards), or determination of certain components or characteristics fixed by

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Perekhod, I. A., Teoriya Yazykov i Metody Postroyeniya Sistem Programmir, Kiev-Alushta, 1972, pp 111-120

the author in the responses, allowing the response to be evaluated for analysis to be continued. The AL contains the required analysis operators, allowing the author to fix the proper response (or several equivalent proper responses), several possible improper responses (typical errors) and record an unforeseen improper response, to be used subsequently for improvement of the program. The author can introduce the effectiveness criterion for teaching, dependent on any number of arguments such as time spent thinking over the answer, number of errors made, number of requests for assistance, etc. The AL has a special operator for this purpose.

2/2

USSR

UDC: 681.3

KASATKIN, V. N., PEREKHOD, I. A., LITVINENKO, V. M., KHRISTIN, I. V.,
ZDOROVTSOV, A. A.

"Algorithmic Station System, and the Teaching of Programming in Secondary
Schools"

V sb. Primeneniye tsifr. vychisl. mashin dlya obuch. programmir. (Use of
Digital Computers for the Teaching of Programming—collection of works),
Kiev, 1970, pp 25-30 (from RZh-Kibernetika, No 7, Jul 71, Abstract No
TV779)

[No abstract]

1/1

P
UDC: 621.372.061

USSR

PEREKHOD, N. G.

"On the Possibility of Simplifying the Construction of a Device for Experimentally Determining an Estimate of Dispersion in the Fluctuating Difference of the Phases of Radio Impulse Signals"

Tr. Tomskogo in-ta radioelektron. i elektron. tekhn. (Works of the Tomsk Institute of Radio Electronics and Electronic Technology), 1970, 16, 43-49 (from RZh-Radiotekhnika, No 7, Jul 70, Abstract No 7A45)

Translation: The author notes the disadvantages of the device which he proposed in cooperation with Shtorev (Sb. Ref. informatsiya po radicelektronike, 8, 1969, ref. 7160). The possibility of simplifying the device is demonstrated on the basis of an analysis of the relationship between the estimate of the dispersion in the fluctuating phase difference on the one hand and the estimate of the mean square deviation and the mean absolute deviation of the random process on the other hand. One illustration, bibliography of five titles. N. S.

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USSR

P

UDC: 621.317.77

PEREKHOD, N. G.

"Effect Which the Nonlinear Error of a Phase Meter has on the Accuracy of Measuring the Dispersion of Fluctuating Phase Differences"

Tr. Tomskogo in-ta radicelektron. i elektron. tekhn. (Works of the Tomsk Institute of Radio Electronics and Electronic Technology), 1970, 16, pp 50-59 (from RZh-Radiotekhnika, No 7, Jul 70, Abstract No 7A188)

Translation: The author considers the effect of the following on the accuracy of measuring the dispersion of phase difference: 1) the number of the harmonic which describes the nonlinearity of the phase function of the phase meter; 2) the signal-to-noise ratio (for the case of single-channel noises). The results are used to find the errors in measurement of the dispersion of the fluctuating phase difference which arises with basic forms of nonlinearity of the phase characteristics of the phase meter. E. L.

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1/2 020 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--BROMINATION OF SOME O-DERIVATIVES OF ALDOXIMES -0-

AUTHOR-(03)-KAMAY, G.KH., NIKOLAYEVA, A.D., PEREKHOOKO, V.S.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAYED., KHIM. KHIM. TEKHNOL. 1970, 13(2), 225-9

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--BROMINATED ORGANIC COMPOUND, OXIME, MOLECULAR STRUCTURE, IR
SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/0176

STEP NO--UR/0153/70/013/002/0225/0229

CIRC ACCESSION NO--AT0132453

UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AT0132453

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ACID BROMIDE OF O-PROPYL BUTYROHYDROXAMATE, PRCBR-NOPR, (I) IS PREPD. IN 65PERCENT YIELD BY STIRRING 13.7 G PRCH:NOPR IN 50 ML CCL SUB4 WITH 17 G BR IN 20 ML CCL SUB4 UNTIL THE MIXT. IS DECOLORIZED. AFTER 8 HR, THE TWO PHASE MIXT. IS NEUTRALIZED WITH AQ. NAHCO SUB3, AND WORKED UP. THE FOLLOWING COMPODS. ARE SIMILARILY PREPD. IN 52-70PERCENT YIELD, WHERE R AND R' PRIME1 IN THE FORMULA RCBR-NOR PRIME1 ARE: ME AND PHCH SUB2 (II), ET AND PR, ET AND BU, ET AND ISOAMYL, PR AND ET, AND PR AND PHCH SUB2. HYDROLYSIS OF II WITH 12PERCENT HCL BY BOILING FOR 2 HR., FOLLOWED BY WORK UP, WITH SATD. AQ. KOH GAVE PHCH SUB2 ONH SUB2. TREATMENT OF I WITH NAOET-ETOAH GIVES PRC(OET):NOPR IN 71PERCENT YIELD, D PRIME20 0.8941, N PRIME20 SUBD 1,4320. THE STRUCTURE IS CONFIRMED BY IR SPECTRA. FACILITY: KAZAN. KHIM.-TEKHNOL. INST. IM. KIROVA, KAZAN, USSR.

UNCLASSIFIED

Acc. Nr:

AM0053450

Abstracting Service:
CHEMICAL ABST.

Ref. Code:

5/30

UR0366

110714e Structure of products of the alkaline alkylation of aliphatic aldoximes. Kamai, G.; Nikolaeva, A. D.; Perekhod'ko, V. S.; Zykova, T. V. (Kazan. Khim.-Tekhnol. Inst., Kirova, Kazan, USSR). Zh. Org. Khim. 1970, 6(2), 394-5 (Russ.). The basic alkylation of RCH:NOH gave RCH:NOR¹ (syn- and anti-forms by NMR spectroscopy) and the anti-form of RCH:N(O)R¹. CPJR

REEL/FRAME
19830475

USSR

UDC 539.3.01

PEREKHKATOV, V. K.

"Application of the Force Method to the Solution of a Plane Problem for a Piecewise-Homogeneous Medium"

V sb. Kratk. tezisy dokl. k Konf. po povrezhdeniyam i ekspluat. nadzhnosti sudovykh konstruktsiy, 1972 (Brief Summaries of Papers at the Conference on Damages and the Operational Reliability of Ship Designs, 1972 -- Collection of Works), Vladivostok, 1972, pp 36-39 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V41)

Translation: The combination of two doubly connected plates of isotropic material rigidly fastened and subject to the action of an arbitrary load statistically balanced on the free contours of both plates is discussed. The solution is reduced to substitution of the contact forces by forces distributed uniformly along a series of segments of the contact contour. It is proposed that the complex Kolosov-Muskhelishvili potential can be determined for a given load and single contact forces. A system of linear equations is compiled for determining the intensity of contact forces by equating displacements of both plates at one of the points of each segment of contact. K. A. Kitover.

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UDC 621.371.029.55 10

USSR

BENEDIKTOV, Ye. A., GETMANTSEV, G. G., YEZHOV, A. I., KOROBKOV,
Yu. S., MALYSHEV, S. K., MATYUGIN, S. N., MITYAKOV, N. A.,
SAZONOV, Yu. A., CHERNOV, V. A., BEN'KOVA, N. P., BEREZIN, Yu. M.,
BUKIN, G. V., KOLOKOLOV, L. Ye., and PEREKHvatov, Yu. K.

"Results of an Experiment in Shortwave Radio Propagation"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl.
Sekts. 3. (Tenth All-Union Conference on the Propagation of Radio
Waves; Report Theses; Section 3--collection of works) "Nauka," 1972
pp 73-76 (from RZh--Radiotekhnika, No 10, 1972, Abstract No
10A367)

Translation: Results of experiments on investigating the characteristics of wave propagation in the decameter range (5.7-15.0 MHz) are analyzed; the communications took place between the following magnetically adjacent points: an ionospheric station in Gor'kiy and two science research ships in the Indian Ocean. In particular, the possibility of communication over the Peterson beam was estimated. Two illustrations, bibliography of one. N. S.

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PEREKHVATOV, Yu.K.

RIN/ 1 R-160/5. M.R.-13

Dec 72

VII. ATMOSPHERIC PHYSICS

Benediktov, Yu. A., G. V. Bukin, Yu. V.
Kushnrevskiy, S. N., Nityugin, N. P., Novarov,
Yu. K. Perekhvatov, and M. D. Fligrl.

Reception of Kosmos-381 signals from a conjugate point region. Kosmicheskaya izvedo-
vaniye, no. 2, 1972, 302-303.

An attempt is described to detect satellite r-f signals from a conjugate point, with the object of precluding the possible anomalous magnetospheric or ionospheric modes that may be excited from ground-based transmitters in conjugate point experiments. The tests were done in December, 1970 using the Kosmos-381 satellite which broadcast at 2, 3.2, 5.5, 8.5, 10.4 and 12.8 MHz. Pulse power was 100W; one pulse width was 1.50μs at a 48 Hz repetition rate; reception was monitored with wideband delta or rhombic arrays at both the Moscow and Gor'kiy tracking stations. During part of the test period the orbital plane included both the receiver and conjugate points; the remaining orbits included the conjugate point only.

In the 13th recording session with transmission at 12.8 MHz, a signal from the conjugate point (lat. 39.5° S, long. 55° E) was clearly received at Moscow for an interval of 20 seconds, corresponding to a satellite travel of 150 km. The magnetosphere channel width was however somewhat less than this value, since the satellite path was presumably at some inclination to it, and also because the channel tends to "trap" the transmitted signal near its boundaries. Analogous reception at Gor'kiy was only for 0.25 to 0.5 sec, evidently because the satellite only grazed the waveguide channel. In some cases conjugate point reception was obscured by noise in the 12.8 MHz range; however there were cases where clear line-of-sight signals were recorded with no corresponding conjugate point reception.

USSR

UDC 576.858.6.083.35.07

(11)

ZHDANOV, V. M., BYKOVSKIY, A. F., AL'TSHTEYN, A. D., LOZINSKIY, T. F., URYVAYEV, L. V., VOLKOVA, M. L., YERSHOV, F. I., IL'IN, K. V., BEKTEMIROV, T. A., IRLIN, I. S., MILLER, G. G., ZAKHAROVA, L. G., PEREKREST, V. V., GERASINA, S. F., and SEVAST'YANOVA, M. V., Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR, and the Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, Moscow

"Detection of Oncornaviruses in Continuous Tissue Cultures"

Moscow, Voprosy Virusologii, No 4, 1973, pp 411-414

Abstract: Studies were conducted on a number of human and animal continuous tissue cultures maintained in medium 199 containing 10% bovine serum to determine oncornaviruses. Formation of viral particles in the tissue cultures were followed by the appearance of viral particles in the culture fluid labeled with H³-uridine, susceptibility of their synthesis to low actinomycin D concentrations, appearance of these particles following inhibition of nuclear material synthesis by bromodeoxyuridine or mitomycin, presence of reverse transcriptase in these particles, presence of 60-70 S RNA in these particles, and electron microscopy. Of the 26 human lines investigated 14 contained type B oncorna virus, and 4 lines type C virus. Eight of the 1/2

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(11)

ZHDANOV, V. M., et al., Voprosy Virusologii, No 4, 1973, pp 411-414

14 animal lines studies also showed the presence of oncornaviruses. The source of these viruses in the human lines remains unclear, but the source may have been bovine serum or porcine trypsin used in the preparation of cell suspension. It is noteworthy that type B viruses were isolated in human cultures of epithelial origin, while type C viruses in human cultures of leukotic or sarcomatous origin.

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1/2 018

UNCLASSIFIED

PROCESSING DATE--20NOV79

TITLE—ELECTRICAL CONDUCTIVITY OF ZINC SULFIDE SINGLE CRYSTALS -U-

AUTHOR—(04)—KORSUN, V.F., MALTSEV, YE.K., ROMANCHENKO, V.A., PEREKRESTOVA,

LaG
COUNTRY OF INFO—USSR

SOURCE—Izv. VYSSH. UCHEB. ZAVED., FIZ. 1970, 13(2), 131-3

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS—ELECTRIC CONDUCTIVITY, ZINC SULFIDE, SINGLE CRYSTAL, FORBIDDEN BAND

CONTROL MARKING—NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/1398

STEP NO--UR/0139/70/013/002/0131/0133

CIRC ACCESSION NO--AT0120191

UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AT0120191

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ACCUMULATION OF SPACE CHARGE
IN A CONST. ELEC. FIELD AND THE CURRENT VOLTAGE CHARACTERISTICS IN A
LARGE RANGE OF FIELDS WERE DETD. THE ELEC. COND. WAS DETD. BETWEEN 20
AND 250DEGREES; THE ACTIVATION ENERGY OF THE PROCESS WAS BETWEEN 1.25
AND 1.41 EV. THE STRUCTURE OF THE FORBIDDEN BAND IS DISCUSSED.
FACILITY: DNEPRCPETROVSK. GOSUNIV., DNEPRGPETROVSK, USSR.

UNCLASSIFIED

USSR

PEREL', V. I., PINSKIY, YA. M.

"Direct Current in a Conducting Medium Induced by a High-Frequency Electromagnetic Field"

Leningrad, Fizika Tverdogo Tela, Vol 15, No 4, 1973, pp 996-1003

Abstract: A general expression is obtained for the direct current J considering both dynamic and statistical factors valid for arbitrary dependence of the collision frequency on the velocity. The expression for the photoelectric (radioelectric) field E_0 can be obtained from the condition that $\sigma_0 E_0 + J = 0$, where σ_0 is the static conductivity. Under defined conditions, the main cause of occurrence of the current is not the high-frequency Hall effect, but non-uniform heating of the carriers by the electromagnetic wave field. A calculation is performed under the assumption that the current carriers are not degenerate and have a quadratic and isotropic dispersion law. The basic assumptions under which the investigated method of calculating the direct current is applicable are as follows: a) the field varies slowly in space; b) the field is small; c) it is assumed that $hw \ll T$. The quantum limit was investigated by A. A. Grinberg [ZhETF, No 58, 989, 1970].

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USSR

UDC 537.226+537.311.33

PEREL', V. I.

"Quantum Transitions in Semiconductors"

V sb. Materialy 6-y Zimney shkoly po teorii yadra i fiz. vysok. energiy. 1971,
Ch. 3 (Materials of Sixth Winter School on Nuclear Theory and High-Energy
Physics, 1971, Part 3 -- Collection of Works), Leningrad, 1971, pp 5-28 (from
RZh-Fizika, No 1, Jan 72, Abstract No 1YE1029)

Translation: This survey considers: 1) a general scheme of perturbation
theory; 2) graphic representation of perturbation theory; 3) electron scatter-
ing by impurities; 4) electron-phonon interaction; and 5) electron-photon
interaction.

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USSR

GROSS, Ye. F., PEREL', V. I., and SHEKHMAMET'YEV, R. I., Physicotechnical Institute imeni A. F. Ioffe, Academy of Sciences USSR, Leningrad State University imeni A. A. Zhdanov

"A Reverse Hydrogenlike Series in the Optical Excitation of Light Charged Particles in Bismuth Iodide (BiI_3) Crystal"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 13, No 6, 20 Mar 71, pp 320-325

Abstract: While making an experimental study of exciton states in BiI_3 crystal, the authors discovered a hydrogenlike spectrum — a hydrogenlike series of resonance absorption and emission lines which converge in the long-wave region of the spectrum instead of the short-wave region, as usually happens. The article gives a brief description of the phenomenon and attempts to explain it by the light excitation of light charged particles with negative effective masses. The authors thank undergraduate student Ye. I. BALASHOV and postgraduate student I. I. MEL'NICHENKO for their assistance in the experiments.

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Acc. Nr: AP0043687

P

Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy
Fiziki, 1970, Vol 58, Nr 2, pp 666-676

RELAXATION IN THE SUBLVEL SYSTEM OF THE EXCITED STATE
OF ALKALI METAL ATOMS COLLIDING WITH NOBLE GAS ATOMS

A. I. Okunovich, V. I. Perel

A general expression is obtained which describes relaxation of the density matrix of excited atoms during collisions with noble gas atoms. It is assumed that during the collision reorientation of the nuclear moment does not occur. The relative values of the decay constants for orientation alignment and octupole moment of the electron shell for a state with a moment $\frac{3}{2}$ ($\gamma_1 : \gamma_2 : \gamma_3 = 0.92 : 1.14 : 1.01$) are determined by numerical solution of the collision problem and under the assumption of Van der Waals interaction between the atoms. The Van der Waals constants are estimated in order to determine the absolute values of the decay constants. The relaxation matrix in the system of hfs sublevels is expressed in terms of γ_1 , γ_2 and γ_3 .

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REEL/FRAME
19770091

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Acc. Nr: AP0043642

P Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy
Fiziki, 1970, Vol 58, Nr 3, pp 1090 - 1097

EFFECT OF RESONANCE RADIATION CAPTURE,
ON THE CHARACTERISTICS OF A GAS LASER

M. I. Dyakonov, V. I. Perel'

The nonlinear polarizability of an active gas medium is calculated by taking into account capture of resonance radiation. Radiation capture results in efficient mixing of the velocity distribution for atoms at the upper working level and also in leveling out of the population in the Zeeman sublevels of the atoms. It is shown that along with formation of Bennet holes generation leads to a general lowering of the amplification contour, and the saturation effect acquires some properties which are characteristic for uniform broadening. It is shown that radiation capture alters the dependence of the generation intensity on resonator tuning (shape of Lamb dip). It is shown that the parameters characterizing the dip depend on the total moments of the operating levels and on polarization of the laser radiation.

111

REEL/FRAME
19770045

21 Feb

Epidemiology

USSR

UDC 616.988-002.151-036.2(470.61)

PERELATOV, V. D., VOSTOKOVA, K. K., BUTENKO, A. M., and DONETS, M. A., Rostov Scientific Research Institute of Medical Parasitology, Ministry of Health RSFSR; Institute of Poliomyelitis and Virus Encephalitides, Academy of Medical Sciences USSR

"Epidemiology of Crimean Hemorrhagic Fever. II. Characteristics of the Epidemiology of Crimean Hemorrhagic Fever in Belokalitvenskiy Rayon of Rostov Oblast"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 41, No 6, Nov/Dec 72, pp 718-724

Abstract: A study carried out in 1970-71 in Belokalitvenskiy Rayon of Rostov Oblast indicated a sporadic occurrence of human infections with Crimean hemorrhagic fever. The maximum incidence (80 cases) was observed in May 1971. Maintenance of a source of infection was associated with the grazing of cattle on wooded land; antibodies to the virus were present only in the blood of cattle that were driven out regularly to forested pastures. Strains of the virus were isolated from *Rhipicephalus rossicus* (the predominant Ixodid species) and *Dermacentor marginatus* ticks collected from cattle and hedgehogs in wooded regions. Hares inhabiting steppe regions and fields also functioned as hosts
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USSR

PERELATOV, V. D., et al., Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 41, No 6, Nov/Dec 72, pp 718-724

of infected ticks, but their importance as a source of transmission of the disease was less than that of forest-inhabiting small rodents. The majority of patients had been attacked by ticks in forests, shelter belts, and gardens. Milkmaids were infected during the milking of cows in forests or as a result of contact with cows that had been 1-1.5 hrs earlier in forests -- after expiration of this time, the ticks were firmly attached to the cows.

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PERELATOV, V. D.

MEDICINE

JPRS- 53880
23 August 1971

UDC 616.988-002.151-036.2(470.61)
EPIDEMIOLOGY OF CRIMEAN HEMORRHAGIC FEVER. REPORT 1. EPIDEMIOLOGICAL CHARACTERISTICS OF CRIMEAN HEMORRHAGIC FEVER IN ROSTOVSKAYA OBLAST

Article by V.D. Perelatov, K.N. Vostokova, V.N. Yesobinskaya,
and V.I.A. Dubrovin, Scientific Research Institute of Medical Parasitology, RSFSR Ministry of Public Health; Moscow,
Medgizinstroy, Peretzolosnye Bolezni, Russian Federation, No. 3, 1971, pp. 324-327

A number of works have already treated the epidemiological problems of Crimean hemorrhagic fever (CHF) in Rostovskaya Oblast (Perelatov, 1964, 1965; Perelatov et al., 1966; Kirilya et al., 1966, and others). The materials at our disposal and our own observations over the period 1963-1969 provide a possibility for dynamically describing the natural focus of CHF in Rostovskaya Oblast, pin-pointing population groups in a potentially dangerous position with regard to CHF infection, justifying a number of nonspecific prophylactic measures, and defining the immediate tasks.

For the oblast as a whole the total number of CHF infections did not exceed 60 cases per year from 1963 through 1969. With the exception of 1965 when 131 victims of CHF were recorded. Even though the infections were of a sporadic nature, the number of CHF patients as well as the number of population centers undesirable with respect to CHF and of infected rayons increased through 1968 (Figure 1).

A tendency of "expansion" of the borders of the focus has been noted toward the northwest and southeast. Cases of CHF infection were recorded in 1963 and 1969 in Krasnodar, Novorossiysk, and Shcheljanskii rayons, where there were none before 1963. Even though there were changes in the

USSR

UDC 621.374.32

PEREL'MAN, A. A.

"High-Speed Decade Scaler Based on Integrated Circuits"

Moscow, Pribory i Tekhnika Eksperimenta, No 5, Sep-Oct 1971, pp 106-107

Abstract: A high-speed decade scalar is described, the counting part of which is a synchronous binary-decimal counter built-up on the basis of the hybrid integrated microcircuits 2IYe231 and 2LB231. The indication state of the counter is accomplished with an IN-1 gas-discharge numerical tube controlled through a matrix decoder based on D220 diodes by eight MP-26 transistor keys. The characteristics are presented of a laboratory model of a 4-decade scaling device with a scaling factor of 10^4 . An experimental check of the model in the temperature range -60 to 70°C with a change of the power-supply voltage from 3.0 to 5.0 v showed its capacity for work up to a frequency of 30 MHz. Received by editors: 5 Apr 71. 3 ref. 1 fig. [Moskovskiy inzhernofizicheskiy institut--Moscow Engineering-Physics Institute]

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USSR

UDC: 621.382.3

DUDNIKOV, V. P., ZAYTSEV, B. D., PEREL'MAN, A. A., and SHVEDOV, Ye. Ye.

"Drift Time of MOS Transistors"

Kiev, Izvestiya VUZ--Radioelektronika, Vol 13, No 11, 1970, pp 1358-1361

Abstract: it is asserted that data regarding the drift time of MOS (metal-oxide semiconductor) transistors is rather exiguous although such data is important since the stability requirements of linear circuits involving such components are much stricter than present-day integrated digital circuits. This paper gives the results of measurements made of 40 MOS transistors, with induced p-channel, of either SiO_2 or Si_3N_4 films. Both these films were 0.17 μ thick. The parameter chosen for the drift time criterion was the increase in voltage applied to the gate corresponding to the ratio of the measured increment in the drain current to the transconductance of the transistor under measurement for a given drain current. A block diagram of the measuring equipment is shown. It was found, in the course of the measurements, that the drift time of the MOS with SiO_2 is fully reproduced even after the gate is deprived of its voltage. The results of an experiment performed on the basis of that fact indicated that the drift of the MOS transistor is basically caused by the migration of ions and the charge of the surface states.

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14093 TWO CLASSES OF REDUCING GEOCHEMICAL BAR-

RIERS IN EXOGENIC URANIFEROUS DEPOSITS. Zelenov,

O. I.; Visekina, M. A.; Perel'man, A. I. At. Energ. (USSR):

28: 3-9 (Jan 1970). (In Russian).

The formation of uranium and selenium ores takes place at the reducing barriers of hydrogen sulfide and gley deposits of stratum oxidation. The deposition of uranium, selenium, iron sulfides and sulfides of chalcophytic elements is a characteristic feature for hydrogen sulfides reducing barrier. At the gley barrier uranium and selenium are deposited, but sulfides of iron and chalcophytic elements are not concentrated there. (auth)

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PEREL'MAN, A. YA., and PUNINA, V. A., Leningrad

"Inversion of Integral Equations of the First Kind With Fourier-type Kernels"

Kazan', Izvestiya Vysshikh Uchebnykh Zavedeniy -- Matematika, No 3, Mar 71,
pp 61-71**Abstract:** The article considers integral transforms of the Fourier type

$$\int_0^{\infty} t(zy) m(z) dz = g(y) \quad (y > 0), \quad (1)$$

for which (by definition) there exists the inverse transform

$$\int_0^{\infty} t(zy) g(y) dy = m(z) \quad (z > 0). \quad (2)$$

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PEREL'MAN, A. YA., and PUNINA, V. A., Izvestiya Vysshikh Uchebnykh Zavedeniy -- Matematika, No 3, Mar 71, pp 61-71

If $t(x) \in \Phi$, where Φ is a set of kernels of the Fourier type, then formally

$$T(p) = L^{-1}(1 - p); T(p) = M\{t(x)\}, L(p) = M\{l(x)\}, \quad (2a)$$

where $F(p) = M\{f(x)\}$ denotes the Mellin transform of function $f(x)$; equations(2a) follow from the convolution theorem for the Mellin transform. Let $l(x) \in \Phi$ and $t(x)$ be the corresponding inverse transform of the Fourier type. Then the following identity is valid:

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PEREL'MAN, A. YA., and PUNINA, V. A., Izvestiya Vysshikh Uchebnykh Zavedeniy
-- Matematika, No 3, Mar 71, pp 61-71

$$\int_0^\infty l(zy) \left[\int_0^\infty t(zx) g(x) dx \right] dz = g(y) \quad (y > 0). \quad (3)$$

Assuming the possibility of changing the integration order, the kernels $l(x)$ and $t(x)$ constitute a pair of Fourier-type transforms if and only if the following relation is true:

$$\int_0^\infty t(zx) l(zy) dz = \delta(x - y) + \eta(x, y) \quad (y > 0),$$

where

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